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## LEFT APICAL IMPAIRMENT IN MITRAL STENOSIS.

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IN a fairly large proportion of cases of mitral stenosis there may be obtained a history of hemoptysis. In certain cases this may be the first symptom of any physical defect, and it is because of this spitting of blood, cough, shortness of breath and some weakness that the patient first seeks medical advice. The history being suggestive of tuberculosis, and there being present on examination certain physical signs further suggestive of this condition, the diagnosis is many times confused unless a careful examination of the heart is made at the same time. The presence of impairment of resonance over the left apex anteriorly may be so striking that the lung is wrongly held to be the source of the symptoms, and without seeking further the case is diagnosed as pulmonary when the trouble may be distinctly cardiac. The association of pulmonary signs in mitral stenosis has been a matter of great interest to one of us (G.) for a number of years, and because so little attention has been directed to it in medical literature, we have devoted considerable study to this question while pursuing our work as heads of the special boards for cardiovascular and tuberculosis examinations respectively at Camp Jackson.

The diagnosis of mitral stenosis is oftentimes obscure and difficult, and many times it is overlooked because at hasty examination the

outstanding characteristics of a presystolic murmur and presystolic thrill have not been pronounced. As pointed out by one of us (G.) in a previous paper in this JOURNAL, the following findings establish a diagnosis: Snappy quality of the first sound and systolic tap or shock on palpation, absence of hypertrophy of the left ventricle in the cases uncomplicated with insufficiency, presystolic thrill, presystolic murmur and accentuation of the second pulmonic sound.

The history of rheumatic fever, chorea, tonsillitis and growing pains when authentic is an added evidence, but army histories can be depended upon to no such extent as in civil life. Examination for the above features should be made with great care, with the patient erect, recumbent (not omitting the examination with the patient lying on the abdomen) and before and after exercise test. Murmurs may be missed when the patient is erect and with the heart at rest, and may be very clearly heard when recumbent and with the heart beating more forcefully, as after exertion.

Cases of suspected stenosis as they presented themselves in the draft were studied in this way, and following the heart examination were thoroughly studied from the standpoint of the lungs. In a few instances, in addition to the physical examination, roentgen-ray studies were made, but this aid was not uniformly sought, as the Base Hospital was at some distance from the field of activity of the examining boards and but little time was allowed us to study rejected cases, as they were returned to their homes as soon as they were found to be unfit for general military duty. As controls, many normal cases were studied with respect to the left apical dullness, and all types of individuals, without reference to their physical development, were included.

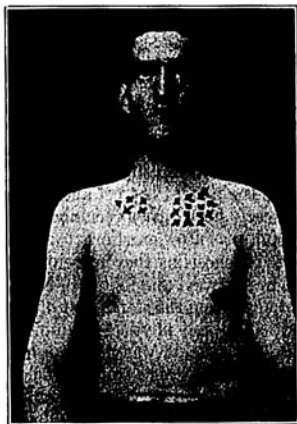
The cases which we have studied together are summarized below. To avoid repetition it may be stated that the diagnosis of stenosis was definite:

CASE I.—Left chest noticeably flat, with less muscle tissue. Dull in both infraclavicular fossæ, left very slight. Inspiration over the left apex harsh, but no other change.

CASE II.—Dullness about the third left rib to the clavicle, extending from the left border of the sternum to slightly within the left midclavicular line. No change in breathing; respiratory sounds faint over the entire chest. No change in voice sounds or fremitus. Krönig's isthmus (KI) not contracted. Slight lessening of resonance above the clavicles, but not dull. No change posteriorly. Indeterminate rales heard over the right lung, due to diffuse bronchitis.

CASE III.—Dullness moderate above the second space to the clavicle on the left side; extends outward to MCL from the left border of the sternum. No voice or breath changes. Dullness above the right second rib. No change posteriorly. No rales and no contraction of KI.

CASE IV.—Moderate depression of supraclavicular fossæ. KI not contracted. Dulness in right first interspace and over the left infraclavicular region from the lower border of the second rib to the clavicle and from the sternum to beyond MCL. Both voice and breath sounds normal, but exaggerated over both lungs.



CASE V.—Dulness above the second right rib; above the third left rib dulness from the sternum three-quarters of the way to MCL in the second interspace and to MCB in the first space. Higher pitch on the right of the sternum. KI normal.

CASE VI.—Dulness over both infraclavicular fossæ, right evident near the sternum. On the left side dulness to beyond MCL and extending below the second rib, giving an impression of a distinctly large dull area. Otherwise negative.

CASE VII.—Dulness over both infraclavicular regions. On the right side it is well within MCL, close to the sternum, and not below the second rib. On the left side it is well beyond MCL and below the second rib. The note is distinctly higher pitched than on the right side, and it is evident that the area of dulness is larger on this side than on the right. Voice sounds are negative, but the breath sounds are somewhat bronchovesicular. KI normal.

CASE VIII.—Dulness above the right second rib, also in the left infraclavicular fossa to the third rib, blending with heart dulness and extending outward to MCL. Left apex above clavicle not dull. KI normal. Right apical dulness similar to that on the left side, but KI is narrowed. Otherwise negative.

CASE IX.—Dulness in both infraclavicular fossæ, the larger area being on the left side, extending beyond MCL. Voice and breath sounds negative, except over the area 1 cm. in the diameter in the second left space, where the voice transmission is marked. Otherwise negative.

CASE X.—Dulness above both the second ribs, much higher pitched on the left than on the right side. KI normal. Otherwise negative.

CASE XI.—Dulness above both the second ribs. Very little difference in pitch between the two sides. Dulness extends through both MCL, with diminishing resonance toward the limits of the area. (Subject very muscular and well nourished.) KI normal. Otherwise negative.

CASE XII.—Dulness in both infraclavicular fossæ, the left higher pitched and more extended than on the right, extending well beyond MCL. Below the left second rib there is diminished resonance, more marked than on the right side, but not dull. Right KI less than the left. Otherwise negative.

CASE XIII.—Right apex somewhat contracted. Dulness in first interspace on the right and left sides. Markedly higher pitch on the left than on the right side, also dulness in the left supraclavicular fossa. Voice transmission increased above the third left rib and above the eighth dorsal vertebrae on the right. KI normal. Otherwise negative.

CASE XIV.—Dulness over both infraclavicular fossæ; on the left it is more extensive than on the right. Breathing higher pitched at both apices and harsher over the left upper lobe on inspiration than on the right. KI normal. Otherwise negative.

CASE XV.—Chest somewhat flat. Dulness over both infraclavicular fossæ, but left is higher pitched. No difference in extent. Slight prolongation of expiration on the left. Expiration not high pitched. KI normal. Otherwise negative.

CASE XVI.—Right supraclavicular fossa depressed. Dulness on the right side anteriorly above the fourth rib. On the left side dulness above the third rib, well within MCL. Diminished breathing over the right upper lobe, with increased vocal resonance. Bronchovesicular breathing over the left upper lobe, with prolonged high-pitched expiration. Roentgen rays show a patch of infiltration in right infraclavicular fossa.

CASE XVII.—Dulness over the right side above the right third rib; on the left side, above the second rib. Both supraclavicular fossæ somewhat dull. KI diminished on both sides. Poor respiratory sounds, but otherwise negative.

CASE XVIII.—Moderate retraction of both apices, moderate narrowing of KI. Moderate dulness over both apices to the fourth rib on the right side and to the third rib on the left. Dulness is marked above the second left rib outward to MCL. Diminished

breath sounds over both lungs, with expiration somewhat prolonged and high pitched at the left upper. Otherwise negative.

CASE XIX.—Dulness in both infraclavicular fossæ—left higher pitched and of wider extent, extending from sternum to MCL and downward slightly below the second rib. KI normal. Otherwise negative.

CASE XX.—Dulness on both sides of the sternum in the infraclavicular fossa. The left is higher pitched, extending below the second rib and outward to within MCL. KI normal. Otherwise negative.

CASE XXI.—Slight depression of both supraclavicular fossæ, left more marked. Both KI somewhat diminished. Dulness above the right and left second ribs. On the left side from the sternum to one-third length of the clavicle the note is somewhat higher pitched than on the right side. Breathing diminished over both lungs. Otherwise normal.

CASE XXII.—Impaired resonance from the left second interspace (middle) upward to a finger's breadth above the clavicle and extending laterally to MCL. Posteriorly, dulness is found from the third dorsal spine upward for 3 cm. Breath sounds increased as compared with the right side and expiration is prolonged. KI normal. Roentgen rays show numerous small areas of infiltration throughout both lungs, being more marked in the right upper lobe.

CASE XXIII.—Apices not retracted. Dulness above the second rib on the right side, also on the left and more marked on the left side, extending beyond MCL. Breathing normal on the right, expiration prolonged on the left, not higher pitched or harsher except above the left second space. Otherwise negative.

CASE XXIV.—Vocal fremitus increased over the left upper lobe and slight dulness from the upper border of the third left rib to the clavicle, extending outward to within MCL. Prolonged expiration over the left upper lobe and marked harsh breathing on the right. Roentgen rays show evidence of old tuberculous lesions.

CASE XXV.—Supraclavicular fossæ not retracted. Dulness present in the right and the left second spaces to the clavicle, being more marked near the sternum, but extending on the left side to MCL and beyond. Somewhat harsher breathing above the second left rib. Otherwise negative.

CASE XXVI.—Dulness of the left infraclavicular fossa to the second interspace and one-half of the distance to MCL. Otherwise the examination is negative.

CASE XXVII.—Dulness on the left side extending to the outer border of the clavicle and as low as the third rib, being more marked beyond MCL. Dulness more marked than on the right side. Otherwise negative. The illustration is from this case and shows the characteristic impairment of the left apex in a classical case of mitral stenosis. The extent of the dulness and the intensity as compared with the normal right apex is shown.

It is important to bear in mind that the left apical dulness occurs

with persistent regularity in mitral stenosis and is not met with in other cardiac disorders. Emphasis is laid on this fact because it is not infrequently the case that hemoptysis and shortness of breath, with other signs of failing health, are early symptoms in mitral stenosis. The similarity between pulmonary tuberculosis and these cases of stenosis, so far as symptomatology is concerned, is striking, and unless one is alive to the fact that mitral stenosis may be at the bottom of the trouble, one is apt to be misled by the existence of a well-marked left-sided apical dulness.

The dulness which we believe to be characteristic of mitral stenosis is found generally anteriorly above the third rib, extending to the clavicle and in some instances above it. It extends a variable distance to the left, at times as far as the outer third of the clavicle. It is unassociated with rales, as a rule, and the voice sounds are not characteristic, while the breath sounds assume a bronchovesicular quality at times. The cause of the dulness or impairment we believe to be an enlargement of the left auricle, which in some cases mutes the sound waves elicited on percussion by its contact with the lung and in other cases causes actual compression of the lung itself. In as much as the dulness is found in the cases in which no Graham-Steell murmur is heard, dilatation of the pulmonary artery probably plays an insignificant role in the production of the dulness.

In cases in which left apical dulness is encountered, we recommend that a diagnosis of tuberculosis be withheld until the heart has been carefully examined for the possible existence of mitral stenosis.

## A BIOLOGICAL CONCEPTION OF NEOPLASIA, ITS TERMINOLOGY AND CLINICAL SIGNIFICANCE.\*

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THE efficiency of the medical profession is dependent upon at least four things, *i. e.*, perfection of its conceptions, perfection of methods, accuracy of investigation and a large amount of kinetic energy. One of the most important economic subjects which have occupied the attention of the profession and demanded perfect conceptions is that of neoplasms.

I shall not review in detail the facts<sup>15</sup> which have led to the apparently radical declaration that the conception or conceptions which the medical profession possesses of the biogenesis, histogenesis, morphology, terminology, classification and clinical behavior of neoplasms are based upon a few facts and a great amount of speculation and empiricism.

\* Presented before the Meeting of the Washington, Oregon and Idaho Tri-State Medical Association, Seattle, Washington, 1918.